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ABSTRACT

After a discussion of the code-emphasis versus phonics-emphasis controversy, strategies for improving the teaching of decoding skills are presented. It is recommended (1) that only those phonic generalizations that are of high utility be taught, and revisions of phonics generalizations be made to make them even more inclusive and useful; (2) that auditory and visual discrimination be stressed early and throughout the grades, with particular emphasis on letters of the alphabet, phonic elements, and word recognition skills; (3) that greater use be made of context clues and analysis of word structure; and (4) that strategies for working with dictionaries should focus on teaching the schwa sound and having smaller sets of different dictionaries available in the classroom. Technologically assisted instructional innovations used in reading instruction are briefly discussed, including the talking typewriter, teaching machines, and the computer. Two linguistic viewpoints, the regular spelling approach and the structural linguistics approach, as they relate to decoding are also described. A bibliography is included. (CL)

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STRATEGIES FOR IMPROVING THE TEACHING OF DECODING SKILLS

The decoding skill had its inception when primitive man stood on a hillside and made gestures to his tribe which they "read" as a warning that the enemy was approaching or when he stood on the other side of a river and made gestures indicating that game was plentiful in that vicinity. Then followed the decoding of picture-writing on sand, bark or stone as the exigency of the occasion demanded. Finally the alphabet was invented; then came centuries of decoding words with the use of the alphabet method.

In so far as American schools are concerned, during the three-and-a-half centuries of our existence a great variety of decoding methods have been used at different times: the alphabet method of course, but also: methods using several modified alphabets; the word method; diacritical marking systems; and several phonic methods - the analytic method, the synthetic method, the "family" method of blending initial consonants with phonograms as at, all, am. These methods have come and gone in cycles through the years of our past but at the moment each and every one of them can be found somewhere in our classrooms. Also several other approaches have been added more recently: modified alphabets again of which i.t.a. is an outstanding example; the Linguistic Approach; the Language Experience Approach; Programmed Instruction; Words in Color; and Technological Approaches. Never has diversity in decoding approaches been so great in the schools of our country. Never has so much research been conducted in this area as that which has issued forth in recent years. The decoding skills are the focus of unprecedented attention at the present time and this attention is well-deserved for nothing is more fundamental to the reading process than the ability to "crack the code."

I will very briefly sum up some of the recent research in this area with the hope that from it some strategies for improvement may emerge directly or through inference.

THE CODE-EMPHASIS VERSUS MEANING-EMPHASIS QUESTION

There have been varying points of view expressed of late in regard to the code-emphasis versus the meaning-emphasis in primary reading. Therefore, it seems advisable to touch upon this topic in

our discussion of decoding skills.

The meaning emphasis had been characteristic of basal readers for several years preceding 1955. In 1955 Witty and Sizemore (30) reviewed and evaluated phonics research, and reported that while the nature and amount of phonics instruction was still debatable that many basal reader programs gave enough instruction to meet the needs of children.

In 1967 Chall (5) reported her research which, among other things, contained a review of the same studies examined by Witty and Sizemore plus many others and included a discussion of the results of the first year of the USOE First Grade Reading Studies as reported by Bond in The Reading Teacher, May 1966.

As a result of her research Chall reached several conclusions one of which will be quoted in part:

". . . a code emphasis - one that combines control of words on spelling regularity . . . produces better results with unselected groups of beginners than a meaning emphasis, the kind incorporated in most of the conventional basal-reading series used in schools in the late 1950's and early 1960's" (5).

I will now briefly discuss the USOE First Grade Studies, themselves. During the first year of this series of studies, data was compiled from 27 individual projects in which different methods and materials were used including Basal, Basal plus phonics, i.t.a., Linguistic, Language Experience and Phonic/Linguistic (3).

Following the first year of experimentation 13 of the 27 projects were continued for another year to assess the relative effectiveness of these programs after two years of instruction (4).

In so far as the results of the first grade study were concerned with decoding Chall (5) was right in concluding that code-emphasis reading programs tend to produce better overall achievement for beginners than do meaning-emphasis programs, and her statement was concerned with "beginners" only. The results of the second grade study indicate that early and relatively intensive teaching of sound-symbol correspondences appears to be highly related to reading achievement at the end of second grade, also. This was true of programs labeled i.t.a., linguistic, and phonic-linguistic.

However, when the third grade was reached we find a different situation. Six of the investigators (Fry (12), Harris (17), Ruddell (25), Scheneyer (26), Vilseck and Cleland (28), and Hayes and Wuest (18) of the original 27 projects followed their pupils through the third grade. These projects included basal readers, i.t.a., linguistic readers, diacritically marked readers, supplemental phonics, and phonic/linguistic readers. In five of the six methods being compared, the reading test results at end of third grade showed no consistent and statistically significant superiority for any of the methods. In one project (18), the phonic/linguistic method, there were the highest mean adjusted reading scores. However, this method also had the highest non-promotion rates in first and second grades so removal of the poorest readers from the group because of promotion policies in the school might have affected the scores in this one case.

To sum up according to the projection of the USOE Cooperative Studies into the third grade the code-emphasis in beginning reading does not show superiority over other methods. There was no consistent

advantage for any of the methods studied when pupils were followed through to the end of the third grade.

And this of course supports the contention that in the long run the teacher, the children, the school, the environment and other general factors of this type are more important than the method or material.

Incidentally while referring to the USOE studies it seems appropriate to mention that several of the original conclusions of the investigators (3) who directed the studies may well serve as useful strategies in improving decoding skills in general. I will quote three of these conclusions and add comments of my own.

1. "Word study skills must be emphasized and taught systematically regardless of what approach to initial reading instruction is utilized."

As a result of their studies the investigators were quite positive in advocating the strategy of <u>emphasizing</u> decoding skills and teaching them <u>systematically</u> rather than incidentally.

2. "Combinations of programs, such as a basal program with supplemental phonic materials, often are superior to single approaches."

Games, devices, auditory and visual materials designed for use in improving the decoding skills are available in great variety. We rarely find scientific evidence in regard to the effectiveness of these aids and we realize that we should not depend upon such materials solely to do the teaching job. On the other hand these aids offer reinforcement, usually motivation, and often opportunity for individual progression. These are desirable qualities which should be recognized and utilized. Visits to exhibit booths during educational conventions, perusal of advertisements in educational periodicals will keep you

continually informed in regard to sources. It is good strategy to use these materials.

One additional conclusion from the USOE studies was:

3. "A writing component is likely to be an effective addition in a beginning program."

I should like to add that several of the methods that produced superior decoding results in first grade children did a considerable amount of writing. Perhaps receiving the perception of the symbol or word through the kinesthetic sense offered an additional avenue which strengthened recognition. Writing symbols for phonic elements and writing sight words should be helpful. No doubt a useful strategy for many of us would be to have children do more writing of sound-symbol correspondences, and of difficult sight words.

STRATEGIES IN REGARD TO PHONIC GENERALIZATIONS

During the last few years phonic generalizations have been the subject of much research and discussion. I refer to those rules which we have taught for years such as "When two vowels are together in a one-syllable word the first one ~~is~~ usually says the name long and the second one is usually silent."

In 1963 Cylmer (6) reported a study in which he selected forty-five generalizations and developed a word test from four widely used sets of readers in primary grades. He then set two criteria for judging the utility of the generalizations as applied to this primary vocabulary. Only eighteen of the forty-five generalizations met the criteria of usefulness in Clymer's study. Following this study, there

appeared to be a hesitancy on the part of many people throughout the country to teach phonic generalizations at all, even though this was not the import of the Clymer research. The very important contributions which the study made were those of causing us to question the value of many generalizations which have been in the literature on reading for years and to stimulate research that would help to decide on strategies for the selection and application of phonic generalizations which are most useful.

Since Clymer's study, many additional studies have been made and we now have available a summary list of "Especially Useful Generalizations." This List was prepared by Dr. Lou E. Burmeister as a result of summarizing and comparing "findings of seven recent studies which were designed to investigate scientifically the value of many commonly found phonic, structural analysis and accent generalizations. This list appears in The Reading Teacher, 21 (January 1968), 349-356. Refer to this article for the most useful generalizations.

Both Winkley (29) and Emans (10) found that a higher utility of generalizations might be realized if the original statements of many of the rules as used in the former studies were modified. For example "When a vowel is in the middle of a one-syllable word, the vowel is short." This generalization was found to have a much higher utility when modified to read "When a vowel is in the middle of a one-syllable word, the vowel is short except that it may be modified in words in which the vowel is followed by r."

To sum up strategies for the content of phonic generalizations: let's keep on teaching them but let's teach only those that are

especially useful, and let's feel free to revise the wording in some of the old ones to make them more inclusive and still more useful.

As for methodology the method most widely used appears to be the inductive method in which children are introduced to a rule through generalization from several examples rather than through memorization of the rule as an isolated item in itself to be applied later.

STRATEGIES IN REGARD TO AUDITORY AND VISUAL DISCRIMINATION

Auditory and visual discrimination are major factors in the perceptual processes. Many studies indicate that these factors have special significance during the readiness and first grade periods.

Several investigators have found a high relationship between ability to recognize the letters of the alphabet and readiness for reading. Nicholson (22), Olsen (24), and Gavel (13) for example, found that recognizing the letters was the best predictor of beginning reading success.

Durrell (8) concluded that auditory and visual discrimination of word elements appear to be more closely related to the acquisition of the primary-grade reading vocabulary than is mental age.

Sister Nila (23) stated that the four chief factors related to reading readiness were: auditory discrimination, visual discrimination, range of information, and mental age, in that order.

Hackney (15) and Bengo and Rosemier (2) tested fourth grade children to ascertain their ability in the word recognition skills. The elements tested involved visual and auditory discrimination.

Both investigators divided their subjects into three groups--high, middle and low, respectively. Hackney divided on the basis of reading ability, Beng and Rosemier on the basis of comprehension. In both cases the high group was significantly superior in the word recognition skills to the average and low groups.

These and many similar studies support the following strategies in regard to the importance of auditory and visual discrimination:

1. The fairly new procedure of giving auditory and visual discrimination practice on letters of the alphabet to pre-school children.

2. Giving auditory and visual discrimination practice on phonic elements early and throughout the first grade.

3. Placing continued emphasis upon auditory and visual discrimination of word recognition skills <u>throughout</u> the grades.

USE OF CONTEXT CLUES AND ANALYSIS OF WORD STRUCTURE

All through the years from 1776 until the 1940's phonics was considered to be the one technique which children should be taught to use in finding out the pronounciation of unrecognized words. However, in the late forties and early fifties two new techniques appeared and were widely accepted - those of using context clues and structural analysis.

With the exclusive emphasis of some people on sound-symbol methodology, are these people tending now to complete the cycle of returning <u>only</u> to a sound-symbol technique? Should we?

Does the use of context clues have value in word recognition?

We have some studies that indicate the usefulness of the context technique. Goodman (14) tested children on reading lists of isolated words. Then he had them read text in which these same words appeared. The study indicated that primary children can read many words in context which they cannot read from lists.

Hafner (16) tried teaching context clues to fifth graders for a month. This instruction caused them to make gains in comprehension.

McKee (21) found that the average child in fourth grade can use context clues to identify the meaning of an unrecognized word about once in three times.

Dulin (7) groups context clues which would probably be useful in the middle and secondary grades under two heads: Format or Typographical Aids" and "Syntactical and Structural Aids." Under the latter he names contrast, synonyms and opposites, direct description, cause-effect relationships, tone or mood, and combinations of these.

Goodman has an article in The Reading Teacher for February 1970 on "Using Children's Reading Miscues for New Teaching Strategies." This is highly suggestive of ways of making use of childrens' oral reading of context in helping them to improve their reading ability. Be sure to read this provocative article.

Several additional studies and articles reinforce the desirability of teaching children to use context clues in finding out unrecognized words. The use of this technique appears to be very good strategy.

How about structural analysis? Should we continue to teach that as well as sound-symbol relationships?

First let us consider the increased frequency of the changed structure of words. In our frantic search for words to express new meanings in this rapidly changing world, and in our haste to say

everything in the quickest possible way we are adding prefixes and suffixes to thousands of words which heretofore have not been so modified. Furthermore we are compounding and hypenating words at a tremendous rate as short cuts to our ways of saying things. If you will pause to count the number of words whose structure has been modified in most any current literature that you read you will find that from one-third to one-half of them have been changed from their ~~stem~~ base form.

This increase in changed structure of word forms is apparent in textbooks, also. Beginning in third grade structurally-changed words become long and often look difficult to children. On one page in the beginning of a third grade geography they may find rail-road, rainfall, mountainous, descendants, irrigation, reservation, canneries, agricultural, specializes, tropical, population, continent. Quite an array of variant word structures just on one page.

At the secondary level multisyllabic words are highly prevalent and students benefit by studying foreign derivations as well as reviewing the skills of syllabication.

In primary texts there are problems. For example in one first reader the vocabulary list in the back of the book may show soup and thin as the only new words on a certain page but when the children read the page they find helping, boxes, hardly and scared all met for the first time in their changed forms. Even though they have been taught the endings ing, es, and ly, they haven't attached them to these particular ~~stem~~ words before and many of them may need help in doing so, particularly they may need help with the word scare which they are supposed to know because they had the compound word scarecrow in the primer.

It would appear to be good strategy for us not only to teach analysis of word structure at the present time but to stress it because of the increased usage of changed word forms in life's reading and in textbooks, and because readers do not list as a new word structurally changed words, after the element of change has once been introduced and is attached to a known word which has not previously appeared in the text in its changed form.

SOME VIEWPOINTS OF SOME LINGUISTS

Linguistics is the scientific study of language. Linguists are concerned with the broader aspects of language in its several dimensions. Many linguists believe that reading teachers can make the best use of linguistics only by becoming more familiar with this subject as a whole - by taking courses in linguistics, reading and studying about linguistics and applying their more expansive knowledge of language throughout their curriculum activities, including reading. Others have some rather specific ideas about things that might be done in teaching reading that would apply some theories which they have drawn from linguistic science. Still others have expressed ideas which they have interpreted from linguistic theory concretely into reading materials. All linguists feel that the science of linguistics has contributions to make to reading but because of the wide variation of opinion in regard to the nature of this contribution it seems advisable in this paper to limit this section to "Some Viewpoints of Some Linguists." I will very briefly and very sketchily touch upon two viewpoints as they are concerned with decoding activities only.

The Regular Spelling Approach

Most of the linguists who have prepared basal readers have made use of the regular spelling principle. They believe that it is advantage to use word patterns of regular spelling as the content of beginning reading. These word patterns such as cat, hat, sat, etc., introduce consonants as systematically as vowels. As many as twenty patterns are used in some cases, and some irregular spellings which tend to pattern are also included such as right, sight, might, etc. A valid word pattern is considered to be one which functions not only for identifying one-syllable words such as sat, but also for identifying embedded patterns in the stressed syllables of multi-syllable words such as satisfaction. In learning to decode, authors of linguistic readers believe that perception should proceed from the spoken word to the written word. When the pupil applies his word recognition skill he feeds back from the written word to the spoken word.

Of the many patterns used Sabaroff (27) writes of five basic vowel patterns that she has discerned in linguistic materials and which she considers to be of great advantage to children in decoding words. She enumerates these five basic patterns as: (a) the single vowel followed by a single consonant, as cat, (b) the open vowel pattern as, go, (c) the vowel with final e pattern as ride, (d) the double vowel pattern as seed, rain, (e) the vowel with r pattern as for, harm. Then, other special vowel-consonant combinations as all, old, igh, and multi-syllable-words. She feels that each "new pattern opens up a whole new array of words that draw on all previously learned information." The linguistic method, however,

centers on the pattern as a whole, not on the vowel alone.

Structural Linguistic Approach

Structural linguistics is concerned with how language functions when used by persons who learned it as their native tongue. Speech is the primary concern of these linguists in the teaching of reading. They point out that single words rarely bear meanings, that strings of words work together to produce larger wholes in speech. Instead of beginning with words in reading, the structural linguist would begin with oral reading of the larger language patterns or sentences with emphasis on "melodies of speech." They feel that these melodies of speech are cues both to word recognition and meaning. Lloyd (20) says, "The ability to relate the melody of speech to the written page is the key to good reading." The "Melodies" of speech fall under the general heading of intonation which in turn involves stress, pitch and juncture. Some who have produced materials have made use of these elements.

Stress is the degree of loudness or softness with which syllables are uttered. According to linguists there are four levels of stress. In reading, stress may have a lot to do with questions as "What was she doing? What was she doing? What was she doing? What was she doing?"

Pitch refers to the rate of vibration of air while speaking. If air vibrates rapidly we have a high pitch, if slowly, a low. Linguists recognize four levels of pitch. Varying pitch can change a declarative sentence into a question as "He is going." "He is going?" It may change a declarative sentence into an exclamatory sentence expressing excitement as "Tom was coming to visit us."

"Tom was coming to visit us!"

Juncture is the breaking off or interrupting of speech according to the structure of the sentence - the breaks or pauses in the succession, of sounds. For example the sentence "That lady is a queer bird" may have a different meaning if we pause after "That" as "That, lady is a queer bird." The linguists recognize four levels of juncture according to the length of pauses. Space doesn't permit a detailing of these levels. Punctuation usually signals these pauses.

The chief skill contribution of intonation is in the area of meanings, but it also contributes to word recognition through the use of context clues to words that are necessary in completing meanings in sentence patterns.

Incidentally, while on this topic of intonation I might mention another use which an English Professor has found for it in the field of remedial reading. Jean G. Pival has written an interesting article on "Stress, Pitch and Juncture: Tools in the Diagnosis and Treatment of Reading Ills." It appeared in Elementary English, 45 (April 1968), 458-463. You might be interested in reading how this teacher gains insights into the difficulties of her remedial readers and helps to remedy them through her observation and study of their intonation patterns.

STRATEGIES FOR WORKING WITH THE NEW DICTIONARIES

There is a galaxy of new dictionaries being published. Among them are many new picture dictionaries for use in kindergarten and primary grades, and simplified dictionaries for the middle grades. These are great boons from the standpoint of establishing dictionary

habits but they are adding confusion to the already perplexing situation in word attack skills, largely because they are using new marking and pronunciation symbols and because they vary so much from one set to another. They vary in their diacritical markings, the location of accent marks, as well as respellings and usage.

One thing that the several new dictionaries do have in common is what, at first sight, seems to be an over-abundant use of the schwa sound - that very short vowel sound which occurs in unaccented syllables and is alike for all vowels as: a in about, e in problem, i in engine, o in gallop and u in circus. As you know the new dictionaries alike mark this sound with a symbol looking something like an upside-down e. Glancing through the recent dictionaries we may find from 10 to 20 or more of these schwa sound markings on a single page. Perhaps this reflects a modern speech tendency to slur the short vowels in unaccented syllables until all of them sound even shorter than a short u, for example the two e's in Los Angeles", the first i in Louisville".

What strategies may we use in meeting these new dictionary situations?

1. For one thing we had better give a lot more attention to teaching the schwa sound than we have in the past.

2. Let's persuade our curriculum directors or administrators or whoever places book orders to provide classrooms beginning with the middle grades with small sets of dictionaries from different publishers. Instead of having thirty dictionaries that are just alike for a class of thirty children, provide five sets of six each of dictionaries from different publishers. Let the children compare

pronunciation keys, in some cases placement of accent marks, and respellings. In other words develop in children an awareness of differences, and versatility in dictionary usage so that they will be able to use any dictionary at hand in their future school and life work.

TECHNOLOGICALLY ASSISTED INSTRUCTION

They tell us that technology is going to give us a great boost in improving instruction in all fields in the future including reading. I will briefly describe some of the technological devices now in use in teaching reading including decoding.

The talking typewriter is used in teaching reading in several places.

The typewriter, itself, looks like an ordinary typewriter with a large keyboard. Above the typewriter there is a screen for visual presentation and also a microphone. There is a recorder inside the machine which is computer-controlled. Both audio and visual responses are made through the use of slides and tapes.

The talking-typewriter is under experimentation in several public schools where it is being used in teaching nursery school children, and older remedial students. For directed teaching the machine is programmed with co-ordinated visual and audio instructions. For example: when the letter A appears on display and is sounded by the speaker, the child can depress the A key only. None of the other keys will work for him. If the speaker asks the child to spell <u>cat</u> he can depress only the correct letters in the correct order. None of the other letters on the keyboard will respond to his touch.

Results reported from Chicago, Philadelphia and New York where the typewriter is being used with nursery school children indicate that the children learn to recognize the letters and their sounds. In some cases they can type out short stories dictated to them.

In Chester, Pennsylvania, the talking type-writer is being used with many different types of children including high school students needing remedial instruction. Officials there report considerable gains.

In evaluation, it can be said that the ingredients of the learning act are certainly possible in the talking typewriter procedures - motivation, self-activity, satisfaction in correct response. These instruments, however, like the other technological devices are too expensive for general use at the present time.

Some of these machines use commercial materials and methods; some use their own materials and methods; some use a combination of both their own materials and methods and commercial materials and methods.

I will mention the teaching machine next. Most of these machines consist of an audio-visual system conveyed by a screen and ear phones with responses made possible by means of a typewriter and speaker.

The Dorsett Machine is one of these teaching machines and it is about to be used in a highly innovative situation.

A town called Texarkana has contracted with Dorsett Educational Systems to remove math and reading deficiencies of 150-400 seventh and twelfth grade students at least one grade level beginning next October. It is reported that They will receive $75.00 for each full grade level achieved.

They will use their own trained teachers and paraprofessionals. The school will have nothing to do with the teaching. The students will be sent out of the school to a center prepared by the industry.

This was the first contract with industry or a publisher of educational equipment or material taking over by contract the responsibility of teaching reading to students of a school paid on a commercial basis. Others have since followed. We'll probably hear a lot about such arrangements in the future.

Now to discuss the computer. The computer seems to be the most favored teaching device of the future.

The computer is being used to teach reading to first graders at East Palo Alto, California. This is how the computer device works:

There are sixteen terminals from the one computer which serve each of sixteen children. Each child works at the end of his particular terminal. While all children work simultaneously, each one may be working on different material and progressing at his own rate.

The child has an opportunity to make three different kinds of responses: he may make a response on the picture screen with a light-projection pen, on the typewriter, or he may make an oral response according to the instructions given to him by the audio system of the computer or directions on the screen.

In so far as decoding in word recognition is concerned the computer I am sure will prove to be valuable in providing practice in recognizing whole words, phoneme-grapheme relationships, word-structure elements, syllabication, diacritical marks, respellings, the application of useful generalizations, etc. However, I think

the greatest contribution of the computer to decoding may lie in the diagnostic area. By keeping an exact record of each child's achievements we'll know on what particular elements or phases of decoding each child is weak, and if the computer's programmed instruction can't take care of these weaknesses we'll have to take over as teachers and correct them, and believe me there'll be plenty left for us to do. Let us always look forward to being computer-assisted teachers, rather than working in the role of teacher assistants to computers.

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